

Brookhaven National Laboratory National Synchrotron Light Source		Number: LS-PPS-0004	Revision: A
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Subject: <u>X15B</u> Beamline Radiological Interlock Test (Hutch Mode)			
Prepared/ M. Buckley	Approved By: S.Buda	Revision/Periodic Review Log	

*Approval signatures on file with master copy.

Test Reason:	Test Result: <input type="checkbox"/> Passed <input type="checkbox"/> Failed	
	Test Type: <input type="checkbox"/> Full <input type="checkbox"/> Partial	
Test Date:	Start Time:	Finish Time:
Tester 1:	Assistant 1:	
Tester 2:	Assistant 2:	

PREPARATION:

Inform control room operator that test will be done. _____

Turn off 'Red Tag' switch on x-ray ring interlock, and apply LOTO to X-Ray Security system. _____

Verify that vacuum valves and water interlocks are OK on the beam lines that will be checked for Phase I beamlines or connect user interlock test jumper. _____

- Place latch device on door lock so key can be removed. Place switch holders on door switches. Put door key in SRU and turn, open safety and photon shutter. _____

Remove holder from switch 2.

RIB latch light comes on _____

- Replace holder on switch 2.

RIB cannot be reset unless SOR key is turned. _____

- Remove holder on switch 1.

Safety shutter closes _____

Photon shutter closes _____

"Door Fault" comes on _____

RIA latch light comes on _____

RIA can't be reset w/o SOR _____

- Replace holder on switch 1. Search hutch, leave shutter closed.

Hutch Kirk key (KKH) cannot be removed from SRU unless button is pushed _____

- Open safety shutter and photon shutter.

KKH cannot be removed even if button is pushed _____

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6. Close shutters. Turn KKH and note where solenoid unit stops rotation. Push the button and turn key just beyond this point, but not far enough to actuate "key removed" switch. Release the button and leave key in this position. Open shutters, remove KKH, and replace.

RIA latch light comes on _____
RIB latch light comes on _____
The safety shutter closes _____
The photon shutter closes _____

7. With hutch interlock satisfied, leave shutters closed.

Beam line transfer key can be removed only if
button on SRU is pushed _____

Open safety shutter. (Photon shutter remains closed)

Beam line transfer key can't be removed even if
button is pushed _____

8. Close safety shutter. "Cheat" SRU as described in step 6. Open safety shutter, remove the key and replace.

RIA latch light comes on _____
RIB latch light comes on _____
The safety shutter closes _____
SPA comes on _____
SPA can't be reset w/o SOR _____

Reset RIA and RIB

9. Observe the photon shutter (Vat valve) while it is opened and closed.

The mechanism moves freely and without hesitation _____

10. Open the safety shutter. Remove the Control Room Shutter Enable Key for this beam line, then replace the key.

The safety shutter closes _____
RIA latch light comes on _____
The "Control Room Shutter Enable" light goes out _____
The SPA latch comes on (after the key is back on) _____
The safety shutter cannot be opened _____

Reset RIA and SPA

11. Open the Safety Shutter.

At the Control Room Operator's Console, switch the shutter master enable to "Inhibit" and back to "Enable". Note: there is no auto open key switch for beamline.

The safety shutter closes _____
And then re-opens _____

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12. Open safety shutter.
 Disconnect the outboard connector at hutch flange
 Safety shutter closes _____
 RIA trips _____
 RIB trips _____
 SPA comes on _____
 Reset faults and reconnect outboard connector

13. Disconnect inboard connector at hutch flange
 Safety shutter closes _____
 RIA trips _____
 RIB trips _____
 SPA comes on _____
 Reset faults and reconnect inboard connector

14. One person goes to the x-ray equipment area and resets the indicators for RIAX and RIBX at SR100.
 Open the safety shutter and photon shutter.
 Remove holder from door switch #2.
 RIB latch light comes on _____
 RIBX "Loop Enabled" indicator goes out _____
 RIBX "Loop Disabled" indicator comes on _____

 Replace switch holder.
 RIBX cannot be reset _____
 Reset RIB
 RIBX CAN be reset
 ("Loop Enabled" indicator comes on) _____

- 15. Remove holder from door switch #1.
 RIA latch light comes on _____
 RIAX "Loop Enabled" indicator goes out _____
 RIAX "Loop Disabled" indicator comes on _____
 The safety shutter closes _____
 The photon shutter closes _____
 RIAX cannot be reset _____

 Reset RIA
 RIAX CAN be reset
 ("Loop Enabled" indicator comes on) _____

- 16. Remove the holders from the switches. Remove the latch device from the door lock. Open and close the door.
 Door switches operate freely and each makes a "click" when door is opened _____

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17. Satisfy the hutch interlock. Locate the safety shutter associated with the beam line by tracing the beam pipe through the shield wall. Do not rely on labels on the shutter mechanism. Open the shutter.

	The correct shutter opens	_____
	No other shutter at that saw tooth opens or attempts to open	_____
Close the safety shutter.	The mechanism moves freely and without hesitation	_____

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